WHAT IS CLAIMED IS:

1. A QCTC (Quasi-Complementary Turbo Code) generating apparatus comprising:

a turbo encoder having a plurality of constituent encoders, for generating an information symbol sequence and a plurality of parity symbol sequences according to a given code rate by encoding the information symbol sequence, each of the constituent encoders for generating at least one parity symbol sequence, the at least one parity symbol sequence from one constituent encoder corresponding to the at least one parity symbol sequence from another constituent encoder;

a channel interleaver for individually interleaving the information symbol sequence and the parity symbol sequences, alternately arranging the symbols of the corresponding parity symbol sequences, and serially concatenating the interleaved information symbol sequence and the arranged parity symbol sequences; and

a QCTC generator for generating a sub-code of a QCTC by repeating the serially concatenated symbol sequence and selecting a predetermined number of symbols from the repeated symbol sequence according to code rate and selection information.

2. The QCTC generating apparatus of claim 1, wherein the channel interleaver comprises:

a plurality of interleavers for individually interleaving the information symbol sequence and the plurality of parity symbol sequences;

a multiplexer for generating a new parity symbol sequence by multiplexing the interleaved symbols of the corresponding parity symbol sequences; and

a symbol concatenator for serially concatenating the interleaved information symbol sequence and the new parity symbol sequence.

- 20 -

3.   The QCTC generating apparatus of claim 1, wherein the QCTC generator comprises:

a symbol repeater for repeating the serially concatenated symbol 5 sequence; and

a symbol selector for generating the sub-code by selecting a predetermined number of symbols from the repeated symbol sequence at a given starting position according to a given code rate.

10   4.   The QCTC generating apparatus of claim 3, wherein the given starting position is the position of a symbol following the last symbol selected for the previous transmission.

5.   The QCTC generating apparatus of claim 1, wherein the QCTC 15 generator comprises:

a circular buffer memory for storing the serially concatenated symbol sequence; and

a symbol selector for generating the sub-code by selecting a predetermined number of symbols from the serially concatenated symbol 20 sequence at a given starting position according to a given code rate.

6.   The QCTC generating apparatus of claim 5, wherein the given starting position is the position of a symbol following the last symbol selected for the previous transmission.

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7.   The QCTC generating apparatus of claim 1, wherein the QCTC generator generates the sub-code by selecting a predetermined number of symbols from the repeated symbol sequence according to a given code rate, starting with a symbol following the last symbol selected for the previous 30 transmission.

8.   The QCTC generating apparatus of claim 1, wherein the channel interleaver individually interleaves the information symbol sequence and the plurality of parity symbol sequences by PBRO (Partial Bit Reversal Order)

5   interleaving.

9.   A QCTC (Quasi-Complementary Turbo Code) generating apparatus comprising:

a turbo encoder having a plurality of constituent encoders, for generating

10 an information symbol sequence and a plurality of parity symbol sequences by encoding the information symbol sequence, each constituent encoder for generating at least one parity symbol sequence corresponding to at least one parity symbol sequence from another constituent encoder;

an interleaver for individually interleaving the information symbol

15 sequence and the parity symbol sequences;

a multiplexer for generating a new parity symbol sequence by multiplexing the interleaved symbols of the corresponding parity symbol sequences;

a symbol concatenator for serially concatenating the interleaved

20 information symbol sequence and the new parity symbol sequence; and

a QCTC generator for generating a sub-code of a QCTC with a given code rate by recursively selecting a predetermined number of symbols from the serially concatenated symbol sequence at a given starting position according to the code rate.

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10.   The QCTC generating apparatus of claim 9, wherein the interleaver individually interleaves the information symbol sequence and the plurality of parity symbol sequences by PBRO (Partial Bit Reversal Order) interleaving.

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11.   The QCTC generating apparatus of claim 9, wherein the given starting position is the position of a symbol following the last symbol selected for the previous transmission.

5   12.   The QCTC generating apparatus of claim 9, wherein the QCTC generator comprises:

a symbol repeater for repeating the serially concatenated symbol sequence; and

a symbol selector for generating the sub-code by selecting the 10 predetermined number of symbols from the repeated symbol sequence according to the given code rate.

13.   The QCTC generating apparatus of claim 9, wherein the QCTC generator comprises:

15   a circular buffer memory for storing the serially concatenated symbol sequence; and

a symbol selector for generating the sub-code by selecting the predetermined number of symbols from the serially concatenated symbol sequence at the given starting position according to the given code rate.

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14.   A QCTC (Quasi-Complementary Turbo Code) generating apparatus comprising:

a turbo encoder for generating an information symbol sequence and a plurality of parity symbol sequences by encoding the information symbol 25 sequence;

a channel interleaver for individually interleaving the information symbol sequence and the parity symbol sequences, generating new parity symbol sequences by multiplexing the symbols of parity symbol sequences with the same priority levels, and serially concatenating the information symbol sequence and 30 the new parity symbol sequences; and

a QCTC generator for generating a sub-code of a QCTC with a given code rate by recursively selecting a predetermined number of symbols from the serially concatenated symbol sequence at a given starting position according to the code rate.

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15. The QCTC generating apparatus of claim 14, wherein the turbo encoder comprises a plurality of constituent encoders, each constituent encoder generating at least one parity symbol sequence, and at least one interleaver, wherein a primary parity symbol sequence from each constituent encoder has a

10 higher priority level.

16. The QCTC generating apparatus of claim 14, wherein the given starting position is the position of a symbol following the last symbol selected for the previous transmission.

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17. A QCTC (Quasi-Complementary Turbo Code) generating method comprising the steps of:

generating an information symbol sequence and a plurality of parity symbol sequences by encoding the information symbol sequence, the plurality of

20 parity symbol sequences being generated from constituent encoders, at least one parity symbol sequence being generated from each of the constituent encoders, and the at least one parity symbol sequence from one constituent encoder corresponding to the at least one parity symbol sequence from another constituent encoder;

25 individually interleaving the information symbol sequence and the parity symbol sequences;

generating a new parity symbol sequence by multiplexing the interleaved symbols of the corresponding parity symbol sequences;

serially concatenating the interleaved information symbol sequence and

30 the new parity symbol sequence; and

generating a sub-code of a QCTC with a given code rate by recursively selecting a predetermined number of symbols from the serially concatenated symbol sequence at a given starting position according to the code rate.

5   18.   The QCTC generating method of claim 17, wherein the interleaving step is performed by PBRO (Partial Bit Reversal Order) interleaving.

19.   The QCTC generating method of claim 17, wherein the given starting position is the position of a symbol following the last symbol selected for

10 the previous transmission.

20.   The QCTC generating method of claim 17, wherein the QCTC generation step comprises the steps of:

repeating the serially concatenated symbol sequence; and

15   generating the sub-code by selecting the predetermined number of symbols from the repeated symbol sequence according to the given code rate.

21.   The QCTC generating method of claim 17, wherein the QCTC generation step comprises the steps of:

20   storing the serially concatenated symbol sequence in a circular buffer memory; and

generating the sub-code by selecting the predetermined number of symbols from the circular buffer memory at the given starting position according to the given code rate.

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